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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,526

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MERCK-3134

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7590

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EXAMINER

POWERS, FIONA

ART UNIT

PAPER NUMBER

1626

NOTIFICATION DATE

DELIVERY MODE

04/02/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@mwzb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/568,526	<b>Applicant(s)</b> IGNATYEV ET AL.	
	<b>Examiner</b> Fiona T. Powers	<b>Art Unit</b> 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,5-19,27 and 29-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,20,21,28 and 41-44 is/are rejected.
- 7) ☒ Claim(s) 22-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

Claims 1 to 44 are pending in the application.

Receipt is acknowledged of the amendment filed December 17, 2009, which has been entered in the file.

***Election/Restrictions***

The restriction requirement mailed march 19, 2009 was made final in the previous office action.

Claims 2, 3, 5-19, 27 and 29-40 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on April 20, 2009 and August 13, 2009.

***Claim Objections***

Claims 1, 4, 20-26, 28 and 41-44 are objected to because of the following informalities: the claims contain non-elected subject matter. Appropriate correction is required.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 20, 21, 28 and 41 to 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. (US 5876821), of record in view of Sartori et al. (US 6210830) or Heider et al. (US 6423454), of record and Lubs (The Chemistry of Synthetic Dyes and Pigments, Reinhold Publishing Corporation, New York, 1955, pages 248-254) and Busman et al. (US 5541235), cited.

**Determination of the scope and content of the prior art (MPEP §2141.01)**

Chapman et al. discloses structurally similar polymethine cyanine dyes that are useful in optical recording elements. Note column 5, line 66 to column 7, line 10 where Chapman et al. disclose that in the preferred embodiments the Dye+ is a cyanine dye of the structure shown in column 6. In the structure of the cyanine dye in column 6, the methine groups range from 3 to 5. See the definition of n in column 7. The dyes of the reference are structurally similar to the claimed dyes of the formula (I)

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where  $CAT^+$  is a polymethine cation and  $Y^-$  is  $FAP^-$ , a fluoroalkylphosphate anion which is of the formula (II-2). Note Dye B-3 in column 17 of Chapman et al.

Lubs discusses methine, cyanine and polymethine dyes. He discloses that cyanine dyes could be classed as methine or polymethine dyes (p. 248) and that cyanine dyes such as Dye B-3 of Chapman et al. that contain three methine groups are classified under cyanine dyes as carbocyanine dyes (p. 252-253).

Busman et al. disclose cationic dyes with fluorinated alkylsulfonyl counter ions. They disclose that the cation can be a cyanine dye (column 3, lines 29 to 39 and claims 6 and 9) and that the anion can be a fluoroalkylsulfonyl imide such as bis(trifluoromethylsulfonyl)imide (column 3, line 40 to column 4, line 58 and Example 1, for example). Busman et al. disclose that the solubility of cationic dyes in organic solvents is increased by associating them with fluorinated alkylsulfonyl anions (column 1, lines 8 to 11 and column 3, lines 20 to 28).

Sartori et al. and Heider et al. disclose fluoroalkylphosphate salts and their use as electrolyte salts for batteries. Sartori and Heider disclose that lithium fluoroalkylphosphate are superior to hexafluorophosphate salts. For example, they are resistant to hydrolysis in aprotic polar solvents, have excellent solubility in said solvents and are

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extremely stable. Note column 4, line 37 to column 5, line 35 of Sartori and column 1, line 53 to column 2, line 31, column 7, lines 33 to line 45, Example 1 and Table 3 of Heider et al.

Heider et al. also disclose that lithium

bis(trifluoromethylsulfonyl)imide is useful as an electrolyte salt in batteries (column 1, lines 29 to 39, Heider et al.).

*Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)*

The dye B-3 of Chapman et al. differs from those claimed in that the anion is a hexafluorophosphate anion instead of a fluoroalkylphosphate anion.

*Finding of prima facie obviousness---rational and motivation (MPEP §2142-2413)*

One of ordinary skill in the art would have been motivated to make the claimed polymethine cyanine dyes by substituting the fluoroalkylphosphate anion of Sartori or Heider for the hexafluorophosphate anion in the dyes of Chapman et al. with the expectation that additional dyes useful in optical recording elements with greater stability and solubility in aprotic polar solvents would be obtained. One of ordinary skill in the art would also have been motivated to make the claimed polymethine dyes by substituting the fluoroalkylphosphate anion of Sartori or Heider for the hexafluorophosphate anion in the dyes of Chapman et al. because it is known in the dye art to use anions useful in electrolyte salts for batteries to improve the solubility of the cationic dyes as taught by Busman et al.

***Response to Arguments***

Applicant's arguments filed December 17, 2009 have been fully considered but they are not persuasive. Applicants state that Dye B-3 of Chapman et al. is a carbocyanine dye, not a cyanine dye. However, Lubs discloses that carbocyanine dyes are a subset of cyanine dyes and that cyanine dyes can be classified as polymethine dyes. Note the sections of Lubs referred to above.

In response to the Examiner's assertion that it would be obvious to replace the hexafluorophosphate anion in the dyes of Chapman et al. with the fluoroalkylphosphate (FAP) anion to obtain greater stability based on the disclosures of Sartori et al. and Heider et al., applicants state that the resistance to hydrolysis disclosed by Sartori et al. and Heider et al. relates to lithium salts, not dyes and particularly not dyes such as disclosed by Chapman et al. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves

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or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is known in the dye art to use anions useful in electrolyte salts for batteries to improve the solubility of the cationic dyes as taught by Busman et al.

Additionally applicants state that the expectation that FAP<sup>-</sup> dyes would have greater stability than PF<sub>6</sub><sup>-</sup> dyes is incorrect as demonstrated by the poor solubility in water of the FAP<sup>-</sup> dyes compared to the PF<sub>6</sub><sup>-</sup> dyes as shown in Tables 5 and 6 on pages 90 and 92 of applicants' specification. However, the data shown in Tables 5 and 6 is not persuasive of the patentability of the claimed dyes because the closest prior art dye which is Dye B-3 of Chapman et al. has not been compared. The data in Tables 5 and 6 relates to Nile Blue. Nile Blue is an oxazine dye not a cyanine dye as shown in Example 4 on page 66 of the specification. Furthermore, Sartori et al and Heider et al. disclose that fluoroalkylphosphate salts have excellent solubility in aprotic polar solvents. According to Sartori et al., aprotic polar solvents include solvents such as acetonitrile, tetrahydrofuran and diethyl ether. See the table in column 4 of Sartori et al. The data on page 90 of applicants' specification shows that Nitrile Blue FAP is very



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readily soluble in the aprotic polar solvents acetonitrile, tetrahydrofuran and diethyl ether. This supports the Examiner's assertion that replacing the  $\text{PF}_6^-$  anion of the cyanine dye of Chapman et al. would result in cyanine dyes with FAP anions that would be expected to be more stable and have excellent solubility in aprotic polar solvents.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fiona T. Powers whose telephone number is 571-272-0702. The examiner can normally be reached on Monday - Friday 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Fiona T. Powers/  
Primary Examiner, Art Unit  
1626

ftp  
March 27, 2010